

## CLAIMS

What is claimed is:

1. Apparatus for manufacturing a file folder which has an internal divider, said apparatus comprising:

first and second taping stations;

10 a conveyor for advancing to the first taping station and then to the second taping station a feedstock folder comprising: (a) a first folder panel and a second folder panel in a side-by-side, relationship with a gap therebetween, and (b) a first segment of tape extending lengthwise of the assembly, the tape being bonded to, and spanning the gap between, the first and second folder panels;

15 a transfer mechanism upstream from the first taping station, for placing a divider on, and aligning the divider relative to, the folder panel assembly;

there being mechanism at the first taping station for so applying a second segment of tape to the divider and folder assembly as to join a first side of the divider to the first panel of the folder;

5        said apparatus further comprising mechanism located between the first taping station and the second taping station for turning the internal divider about an axis extending lengthwise of the folder assembly to expose a second side of the divider; and

the second taping station comprising mechanism for so applying a third segment of tape as to join the second side of the internal divider to the second panel of the folder.

10      2.     Apparatus as defined in claim 1 in which each of the first and second taping stations comprises a pressure applying mechanism for promoting bonds between; (a) the tape segment applied at that station and (b) the divider and a panel of the file folder.

15      3.     Apparatus as defined in claim 2 in which the bond promoting mechanism of each taping stations comprises complementary press rolls so located along the path of the conveyor mechanism as to pass the joined divider and file folder through a nip between the pres rolls.

4.     Apparatus as defined in claim 1 which comprises mechanism downstream from the second taping station for rotating one of the folder panels about an axis extending longitudinally of the folder into juxtaposition to the internal divider of that folder.

5       5.     Apparatus as defined in claim 4 wherein the mechanism for rotating the one  
folder panel comprises a stationary plow extending in the direction of movement of said  
conveyor, said plow being located downstream from the second taping station.

6.     Apparatus as defined in claim 1 in which the apparatus for rotating the divider  
comprises a stationary plow extending in the direction of movement of said conveyor,  
10    said stationary plow being located between said first taping station and said second  
taping station.

7.     Apparatus as defined in claim 1 which comprises mechanism upstream from the  
first taping station for aligning the divider relative to the feedstock folder, the aligning  
mechanism comprising:

15           a displaceable guide which can be moved to a first position to facilitate the  
placing of the divider on the file folder and subsequently to a second divider aligning  
position; and

                a second, stationary guide extending in the direction of movement of the  
feedstock folder assembly;

5        said first and second guides being so relatively positioned that, with the first guide  
in its second position, said first guide biases said divider against the second stationary  
guide to align the divider on the feedstock folder.

8.       Apparatus for manufacturing a file folder which has first and second folder panels  
and an internal divider, said apparatus comprising:

10      mechanism for securing the divider to the first and second folder panels;

a conveyor for advancing a feedstock folder comprising a first folder panel and a  
second folder panel to the divider installing mechanism; and

a divider transfer station upstream from the divider mechanism which has  
components for placing a divider on the folder panel assembly;

15      the apparatus further comprising a source of dividers; and

the transfer mechanism comprising an arrangement which has:

a first divider transfer mechanism for removing a divider from the divider  
sources, and

20      a second divider transfer mechanism for conveying the removed divider to and  
placing it on the folder assembly.

5     9.     Apparatus as defined in claim 8 in which the first divider transfer mechanism  
comprises a vacuum pickup.

10.    Apparatus as defined in claim 9 wherein the second divider transfer mechanism  
comprises:

a pivotally mounted member for displacing the vacuum pick-up and a divider held  
10 by differential pressure to the pick-up from the divider source to the feedstock folder;

the vacuum pickup being rotatably mounted to said arm; and

the transfer mechanism also comprising an arrangement for so rotating the  
vacuum pickup relative to said arm as the vacuum pickup and divider are displaced from  
the divider source to the feedstock folder as to position the divider face down on the  
15 feedstock folder.

11.    Apparatus as defined in claim 10:

wherein the mechanism for rotating the vacuum pickup and divider comprises  
rotatable drive and driven elements and an endless drive member trained around the  
rotatable drive and driven elements;

5       the vacuum pickup being connected to the rotatable drive element for rotation therewith.

12.     Apparatus as defined in claim 8 which comprises elements for aligning the divider with the file folder assembly on which the divider is placed.

13.     Apparatus as defined in claim 11:

10       which comprises a conveyor for moving the feedstock folder along a path past the divider transfer station to the divider securing mechanism; and

mechanism for aligning the divider with the feedstock folder on which the divider is placed, said mechanism comprising:

a stationary member extending along the path of the feedstock folder;

15       a jogger which extends in the same direction as the stationary member, and

a mechanism operable following the placing of the divider on the feedstock folder panel to so move the jogger toward the stationary member that an edge of the divider is butted against the stationary member.

5 14. Apparatus for manufacturing a file folder which has an internal divider, said  
apparatus comprising:

a taping station; and

a conveyor for moving a folder to and through said taping station a composite of:

(a) a feedstock folder panel comprising a first folder panel and a second folder

10 panel secured in spaced apart, side-by-side by a first segment of tape which spans  
a gap between said panels and is bounded to apposite edges of the panels, and (b)  
a divider placed on the feedstock folder;

said taping station comprising:

a source of an adhesively faced tape;

15 a knife for severing a second segment of selected length from the tape; and

a mechanism for transferring the second segment of tape to the composite of  
divider/feedstock folder with: (a) an adhesively faced side of the second segment facing  
the composite, and (b) the second segment extending in the direction in which the  
composite is moved through the taping station; and (c) portions of the second tape

5 segment lapping onto apposite edge portions of: (i) the divider, and (ii) one of the first  
and second folder panels.

15. Apparatus as defined in claim 14 in which the source of the adhesive faced tape is  
an unwind roll.

16. Apparatus as defined in claim 15 in which the first taping station comprises:

10 an arrangement for eliminating curl in the tape.

17. Apparatus as defined in claim 14 wherein the mechanism for transferring the  
second segment of tape to the composite comprises a vacuum roll.

18. Apparatus as defined in claim 14 which comprises:

mechanism for transferring tape from said source to said knife, said transferring  
15 mechanism comprising:

a metering roll for dictating the length of the second segment tape.

19. Apparatus as defined in claim 18 which comprises a driven pressure roll co-  
operable with the metering roll to pull tape from the unwind roll and direct that tape onto  
the vacuum roll.

5    20. Apparatus as defined in claim 19 which comprises a tape advance mechanism for  
moving said pressure roll away from the metering roll and consequently halting the  
advance of tape to the vacuum transfer roll unless a composite has advanced to the  
taping station.

10    21. Apparatus as defined in claim 20 in which said tape advance mechanism has an  
element for applying a braking force to the tape upstream from the metering roll when  
the advance of the tape is halted.

22. Apparatus as defined in claim 21 in which the tape advance mechanism comprises  
a component operable with said pressure roll moved away from the tape to retract said  
tape from a location where the tape is severed by the knife.

15    23. Apparatus as defined in claim 22 wherein:  
  
the mechanism for transferring the second segment of tape to the composite  
comprises a vacuum roll; and  
  
the tape retracting component has the capability of retracting the tape while  
leaving the tape secured by differential pressure to said vacuum roll.

20    24. Apparatus as defined in claim 14:

5 wherein the second tape segment is faced with a water-activatable adhesive;

said taping station comprising a unit for spraying water onto said tape segment to activate the adhesive as that segment of tape is transferred to the composite by the vacuum wheel.

25. Apparatus as defined in claim 24 in which the water spraying unit comprises a

10 spray nozzle and a mask component for confining water exiting the nozzle to a pattern delimited by a window in the spray box.

26. Apparatus for manufacturing an expandible file folder which has a front panel, a

back panel, and a divider between the front and back panels, said apparatus comprising:

a pleating section; and

15 a conveyor for moving along a path through the pleating section a feedstock

folder which has front and back panels, a divider between said panels, and tape segments forming a hinge at, and along, a first margin of the feedstock folder between: (a) said front panel and said divider, and (b) the divider and the back panel of the folder;

5       the pleating section having, for the tape segments between the divider and each of  
the feedstock folder panels, a creasing blade which extends in the direction of the path  
through the pleating section;

each creasing blade having an edge which engages and so increasingly displaces  
tape segments toward an opposite margin of the feedstock folder as the feedstock folder  
10 moves along the path through the pleating section as to crease and form a pleat in said  
engaged tape segments.

27.     Apparatus as defined in claim 26 in which the contour of the tape segment  
engaging edge of each creasing blade is described by an approximately  
hyperbolic curve.

15   28.   Apparatus as defined in claim 26 wherein:

          said creasing blade is external to the feedstock file folder;  
  
          the pleating section has, between each of the folder panels and the divider, a pair  
of first and second internal creasing blades which lie above and below the external  
creasing blade and on opposite sides of the tape segments engaged by the external  
20   creasing blade;

5           the external creasing blade and the internal creasing blades having tape segment  
engaging knife edges; and

the knife edges of the external and internal blades being so relatively contoured  
that, as the feedstock folder moves through the pleating section, creases are formed by  
the external creasing blade and the first and second internal creasing blades.

10         29.      Apparatus as defined in claim 28 wherein the vertical distance between the first  
and second creasing blades is progressively so decreased in the direction of the folder  
travel through the apparatus as to match said distance to the creases in the tape segment.

30.        Apparatus as defined in claim 29 in which the external creasing blade and the first  
and second internal creasing blades are stationary components.

15         31.      Machinery for installing an internal divider between the front and rear panels of a  
folder assembly, said machine comprising;

first and second work stations and a conveyor for moving the folder assembly  
along a specified path to and through the first work station and then through the second  
work station:

5       there being mechanism at the first work station for taping one side of the divider  
to the folder;

the machine having a plow between the first and second work stations for so  
turning the divider as to expose a second, untapped side of the divider; and

10      there being mechanism at the second work station for taping the second side of  
the divider to the folder.

32.     Machinery as defined in claim 31 which has a pleating section with devices for  
making the file folder expandible by forming pleats in tape segements between said  
divider and each of the folder panels.

33.     Machinery as defined in claim 32 in which:

15      the pleating section has creasing components along which the panels and the  
divider assembled to the panel are displaced to form pleats; and

a separator for the internal divider is locator between the second work station and  
the pleating station component for aligning the divider with a passage between first and  
second of the pleating section creasing components.

5       34. Machinery as defined in claim 33 which comprises mechanism downstream from  
the creasing components for so compressing the file folder as to set the creases made by  
said creasing components.

35. Machinery as defined in claim 34 which comprises:

vertically arrayed components for supporting the front and rear folder panels and  
10      the internal divider in spaced apart relationship in the pleating section;

a set of complementary creasing components for engaging and forming creases  
in: (a) a first complement of tape segments between one of the folder panels and the  
internal divider, and (b) a second complement of tape segments between the internal  
divider and the other of the folder panels;

15       said machinery also comprising a mechanism for moving the folder relative to the  
crease forming components.

36. Machinery as defined in claim 33 in which the pleating station comprises an  
arrangement for tipping the internal divider onto an upper one of the vertically arrayed  
components.

5       37. Machinery for installing first and second internal dividers between the front and rear panels of a folder assembly, said machine comprising:

first, second, and third work stations and a conveyor for moving the folder assembly along a specified path to and through the first work station and then to and through the second work station and the third work station;

10           there being mechanism at the second work station for taping one side of the first divider to one of the folder panels;

there being mechanism at the second work station for taping the second divider to the first divider; and

15           there being mechanism at the third work station for taping the second divider to the other of the folder panels.

38. Machinery as defined in claim 37 which has a pleating section with devices for making the folder expandible by forming pleats: (a) in the tape segments between each of the folder panels and the divider nearest each said folder panel, and (b) in the tape segments between the two dividers.

20       39. Machinery as defined in claim 38 in which:

5       the pleating section has creasing components along which the panels and the  
dividers taped to said panels are displaced to form the pleats.

40.   Machinery as defined in claim 38 which comprises mechanism downstream from  
the creasing components for so compressing the file folder as to set the creases  
made by the creasing components.

10      41.   Apparatus for manufacturing a compartmented file folder:

          said apparatus being of the single pass type; and

          said apparatus comprising:

          work stations at which a divider is mechanically taped between front and rear  
panels of a feedstock folder; and

15       a conveyor for transporting feedstock folders through said work stations.

42.   Apparatus as defined in claim 41 which has mechanism for forming pleats: (a) in  
tapes between the front folder panel and the divider, and (b) in tapes between the rear  
folder panel and the divider.

43.   Apparatus is defined in claim 41 which has work stations for taping at least one  
20     additional divider between the front and rear panels of the feedstock folder.

5 44. Apparatus as defined in claim 43 which has components for forming pleats in  
tapes between the front and rear panels and dividers nearest those panels and in tapes  
between said dividers.